TELECOM SUBMARINE CABLES, A BUSINESS COMPATIBLE WITH THE ENVIRONMENT PROTECTION

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Abstract –All playing agents in marine operation:, telecoms, cable manufactures and cableship operators, are more and more involved in making their increasingly watched and regulated activities to be compatible with sustainable and live oceans.

Keywords - Marine operations, submarine cables, cableship, telecommunication networks, environment protection

I. INTRODUCTION

Fiber optic submarine cables are the backbone of voice and data international telecommunications networks.
Almost 100% of transoceanic Internet traffic is sent via submarine cable.
Cable manufacturers, telecoms, cableship operators and National Authorities are together in the awareness of reaching the final objective that cables as much as marine operations involved both in installation and maintenance of submarine systems developed on the high seas as well as on the coastal areas have a neutral to benign effect on the marine environment

II. SUBMARINE CABLES FOOTPRINT

Fiber optic submarine cables used on telecommunications are small.
Deep-ocean types without protective armour are typically 17-20 mm. diameter.
Armoured fibre-optic cables may reach 50 mm diameter
Their small diameter means that their "footprint" is small, especially when compared to other submarine structures: oil-gas pipelines, fishing trawls,..

III. SUBMARINE CABLES COMPOSITION

They are composed of non-toxic materials that are stable in sea water.
Industry is under increasing environmental scrutiny.
Independent, authoritative academic study to verify submarine cables are benign using scientific techniques:
•To determine if, and to what extent materials leach from cables
•To investigate the nature and extent of colonization of marine growth on cables
•To investigate potential organic compound release from submarine cables
•To determine if submarine cable is a suitable material for construction of artificial reefs

IV. SUBMARINE CABLES, SUBSTRATES FOR MARINE ORGANISMS

Submarine cables form artificial hard substrates, which have provided scientists with some valuable information about colonization, recruitment and growth of sessile deep and high sea organisms.
Underwater images or recovered cables show that submarine cables soon after laid become a suitable support for a great range of marine creatures.
Industry desire to gain approval for the use of recovered submarine cable in the construction of artificial reefs.

V. CABLE PROTECTION ZONES

The great majority of failures on submarine cables take place in sallow or medium depth waters and because of human activity (fishing or anchoring).
As protection for submarine cables, protection zones are established alongside the cables, when fishing and anchoring activities restricted or banned in areas with a high risk of failure.
Cable protection zones may act as marine sanctuaries to improve diversity and fish stocks and prevent illegal fishing.
VI. MARINE OPERATIONS

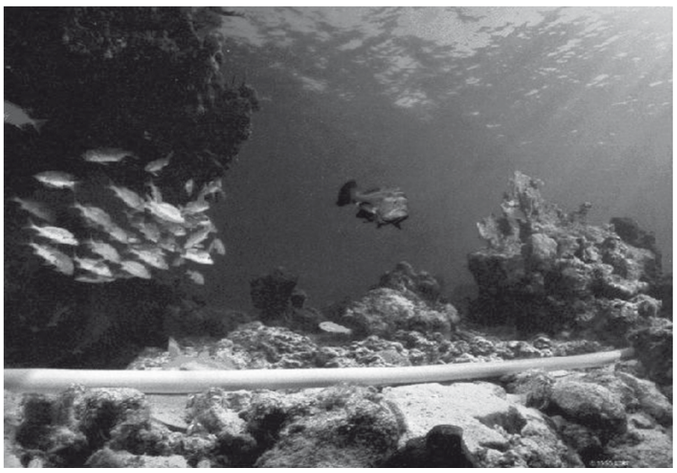

Figure 2. Submarine cable on seabed

A wide range of actions in installation and maintenance of submarine telecommunications systems, cable and seabed survey, cable lay, recovery and repair, dredge with grapnel, cable or zones buoying, use of submarine vehicles, professional divers support, heavy machinery on beach or coastal interventions,…frequently involve the presence of human and technical resources in the marine or coastal environment.
Frequently, repair marine operations take place under global maintenance agree-

Figure 1. Anemones on submarine cable
Courtesy: Monterey Aquarium Research Institute

Figure 3. Cableship

ments (ACMA Atlantic Cable Maintenance Agreement, MECA Mediterranean Cable Maintenance Agreement).
Specific clauses that are reflected on the cableship procedures are included in the text of those agreements and undergone to periodic audits.
Residues refuse collection for recycling
All over the cableship containers for all type of materials and chemical products are deployed.
Scrapping of wasted materials:

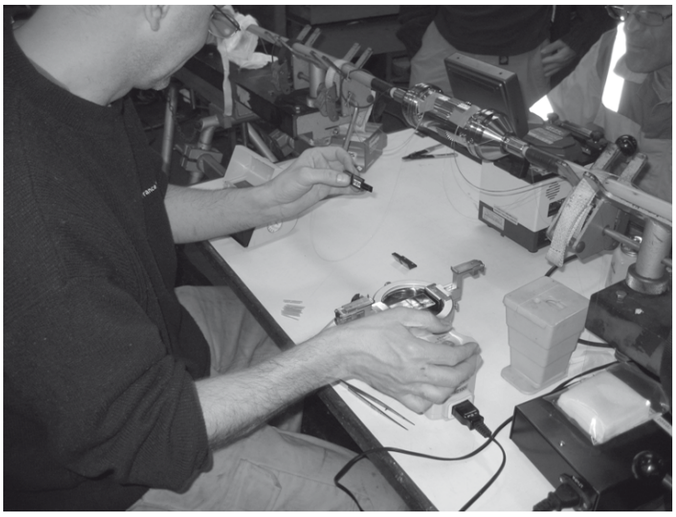

Figure 4. Container for fiber optic waste collection

Discarded sections of cable or splices recovered discarded over the repair are unloaded and transferred to specialized and authorized companies for scrapping.
Planning and Prevention of Chemical and Toxic Spillage.
Apart from during sailing controls, cableships have to go for refit every year, when all systems are strictly checked and controlled.

VII. LEGAL, PAPERS AND REPORTS

National Jurisdiction
Cable routes and Landing Points are submitted to national authorities, undergone environmental potential impact analysis.
International Legal Framework
Rights and duties of states with respect to protecting and conserving living marine resources biodiversity beyond national jurisdiction are contained in an array of legally binding global and regional agreements.
MARPOL
The MARPOL Convention is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes.
The Convention includes regulations aimed at preventing and minimizing pollution from ships - both accidental pollution and that from routine operations - and currently includes six technical Annexes.
UNCLOS United Nations Convention on the Law of the Sea
It is often referred to as the "Constitution for the Oceans" the legal framework applicable to all activities in the oceans and seas.
The laying of cables is recognized in UNCLOS as a traditional high seas freedom, a right conditioned by UNCLOS´s to protect and preserve the marine environment.
Recommendation to cable industries is "to avoid routes through areas hosting sensitive deep-see ecosystems or areas of scientific or historic interest" while further research about the potential impact on environment.
ICPC International Cable Protection Committee
The principal purpose of ICPC is to promote the safeguarding of submarine cables against man-made and natural hazards, guarantying to share the seabed in harmony with others.
ICPC also provides a forum for the exchange of technical, legal and environmental information pertaining to submarine cables.
Members co-operate closely with fishing, undersea mining, oil and gas, dredging, and other offshore industries utilizing the seabed in an effort to reduce the number of incidents of damage to cables.
ICPC monitors the evolution of international legislation where submarine cables are concerned and lobbies for change when it is appropriate to do so. It also leads projects and programs that are deemed beneficial for the protection of submarine cables.

VIII. CONCLUSIONS

Significant anecdotal evidence points to cables being benign
Independent, authoritative academic study to verify submarine cables are benign using scientific techniques
Industry under increasing environmental scrutiny
Evolving International Legal and Policy Regime
Environmental protection measures already in procedures, and contracts.

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Computer generated image of the OBSEA node.